IN THE CLAIMS:

Please write the claims to read as follows:

1-29 (cancelled)

30. (Previously Presented) A router for use in routing packets over a network, the router supporting a plurality, X, of classes of service and including:

A. a plurality of input ports for receiving packets over the network;

B. a plurality of output ports for transferring packets over the network;

C. a classifier for assigning packets received by the input ports to X * Y classes of service, where * represents multiplication, and mapping the XY classes of service to the X classes of service that are supported by the router, the classifier assigning to the packet one of Y associated levels of priority, wherein each level of priority is associated with a different probability of packet loss;

D. a buffer subsystem for retaining the packets in class of service per output port queues based on probabilities of discard associated with the X * Y classes of service; and

E. a scheduler for transferring the packets from the buffer subsystem through each of the output ports based on the X classes of service.

31. (Original) The router of claim 30 wherein the buffer subsystem includes multiple storage locations and links available storage locations in a free queue.

32. (Original) The router of claim 31 wherein the buffer subsystem includes a processor that determines:

i. a new weighted average depth for the free queue, and

ii. a probability of discard for a given packet if the new weighted average queue depth falls below a predetermined maximum threshold associated with the class of service to which the packet is assigned by the classifier.

33. (Original) The router of claim 32 wherein the buffer subsystem discards a given packet if the associated new weighted average depth for the free queue falls below a minimum threshold associated with the class of service to which the packet is assigned.

34. (Original) The router of claim 33 wherein the buffer subsystem processor calculates the probability of discard as $P_d = c-(m*A_{NEW})$ where c is an intercept and m is a slope that is associated with a line that plots average free queue depth versus probability of discard for the class of service to which the packet is assigned, and A_{NEW} is the new weighted average depth of the free queue.

35. (Original) The router of claim 34 wherein the buffer subsystem processor calculates the new weighted average depth of the free queue as $A_{NEW} = A_{CURRENT} + w(I-A_{CURRENT})$ where w is a weighting factor, I represents the instantaneous depth of the free queue and $A_{CURRENT}$ is the current weighted average depth of the free queue.

36. (Previously Presented) The router of claim 30 wherein the scheduler selects from the buffer subsystem packets for transfer based on weighting factors associated with the respective X classes of service.

37. (Previously Presented) A router for use in routing packets over a network, the router supporting a plurality, X, of classes of service and including:

A. a plurality of input ports for receiving packets over the network;

B. a plurality of output ports for transferring packets over the network;

C. a multiple storage location buffer for retaining packets to be transferred through the output ports;

D. a buffer subsystem for retaining the packets in class of service per output port queues based on probabilities of discard associated with X*Y classes of service, where Y represents a number and * represents multiplication; and

E. a scheduler for transferring the packets from the buffer subsystem through each of the output ports based on the X classes of service that the router supports.

38. (Previously Presented) The router of claim 37 further including a classifier for:

i. assigning packets received by the input ports to X*Y classes of service,

ii. associating the packets with the X classes of service that are supported by the router, and

iii. assigning to the packet one of Y associated levels of priority, wherein each level of priority is associated with a different probability of packet loss.

39. (Previously Presented) The router of claim 37 wherein the buffer subsystem includes a processor that determines

i. a new weighted average queue depth for a free queue that links available buffer storage locations, and

ii. a probability of discard for a given packet if the new weighted average free queue depth falls below a predetermined maximum threshold associated with the class of service to which the packet is assigned.

40. (Original) The router of claim 39 wherein the buffer subsystem processor calculates the probability of discard as $P_d = c-(m*A_{NEW})$ where c is an intercept and m is a

slope that are associated with a line that plots average free queue depth versus probability of discard for the class of service to which the packet is assigned, and A_{NEW} is the new weighted average depth of the free queue.

41. (Original) The router of claim 40 wherein the buffer subsystem processor calculates the new depth of the weighted average free queue as $A_{NEW} = A_{CURRENT} + w (I - A_{CURRENT})$ where w is a weighting factor, I represents the instantaneous depth of the free queue and $A_{CURRENT}$ is the current weighted average depth of the free queue.

42. (Previously Presented) The router of claim 40 wherein the buffer subsystem discards a given packet if the new weighted average free queue depth falls below a minimum threshold associated with the class of service to which the packet is assigned.

43. (Previously Presented) The router of claim 40 wherein the buffer subsystem retains a given packet if the new weighted average free queue depth is above a maximum threshold associated with the class of service to which the packet is assigned.

44. (Previously Presented) The router of claim 37 wherein the scheduler selects packets for transfer through each output port based on weighting factors associated with the respective X classes of service.

45. (Previously Presented) An apparatus for routing packets through a router that supports a plurality, X, of classes of service, the apparatus comprising:

means for receiving packets through one or more input ports and assigning the packets to X*Y classes of service, where Y represents a number and * represents multiplication;

means for retaining packets based on probabilities of discard associated with the X*Y classes of service in a multiple storage location buffer that links available storage locations to a free queue; and

means for transferring the packets through one or more output ports based on the X classes of service.

46. (Previously Presented) The apparatus of claim 45, further including:

means for associating packets assigned to the X*Y classes of service with the X classes of service supported by the apparatus; and

means for assigning to the respective packets one of Y associated levels of priority, each level of priority being associated with a different probability of packet loss.

47. (Previously Presented) The apparatus of claim 46, further comprising:

means for determining a new weighted average depth for the free queue; and

means for determining a probability of discard for a given packet if the new weighted average free queue depth falls below a predetermined maximum threshold associated with the class of service to which the packet is assigned.

48. (Previously Presented) The apparatus of claim 47, wherein the means for retaining packets further comprises:

means for discarding a given packet if the new weighted average free queue depth is less than a minimum threshold associated with the class of service to which the packet is assigned.

49. (Previously Presented) The apparatus of claim 47, wherein the means for retaining packets further comprises:

means for retaining a given packet if the new weighted average free queue depth is greater than a maximum threshold associated with the class of service to which the packet is assigned.

50. (Previously Presented) A computer-readable media, comprising:

instructions for execution in a processor for the practice of a method, said method having the steps,

receiving packets through one or more input ports and assigning the packets to X*Y classes of service, where * represents multiplication;

retaining packets based on probabilities of discard associated with the X*Y classes of service in a multiple storage location buffer that links available storage locations to a free queue; and

transferring the packets through one or more output ports based on the X classes of service.

51. (Previously Presented) The computer-readable media of claim 50, wherein the method further comprises the steps of:

associating packets assigned to the X*Y classes of service with the X classes of service supported by the apparatus; and

assigning to the respective packets one of Y associated levels of priority, each level of priority being associated with a different probability of packet loss.

52. (Previously Presented) The computer-readable media of claim 51, wherein the method further comprises the steps of:

determining a new weighted average depth for the free queue; and

determining a probability of discard for a given packet if the new weighted average free queue depth falls below a predetermined maximum threshold associated with the class of service to which the packet is assigned.

53. (Previously Presented) The computer-readable media of claim 52, wherein the method further comprises the step of:

discarding a given packet if the new weighted average free queue depth is less than a minimum threshold associated with the class of service to which the packet is assigned.

54. (Previously Presented) The computer-readable media of claim 52, wherein the method further comprises the step of:

retaining a given packet if the new weighted average free queue depth is greater than a maximum threshold associated with the class of service to which the packet is assigned.

55. (Previously Presented) Electromagnetic signals propagating on a computer network, comprising:

instructions for execution on a processor for the practice of a method, said method having the steps,

receiving packets through one or more input ports and assigning the packets to X*Y classes of service, where * represents multiplication;

retaining packets based on probabilities of discard associated with the X*Y classes of service in a multiple storage location buffer that links available storage locations to a free queue; and

transferring the packets through one or more output ports based on the X classes of service.

56. (Previously Presented) The electromagnetic signals of claim 55, wherein the method further comprises the steps of:

associating packets assigned to the X*Y classes of service with the X classes of service supported by the apparatus; and

assigning to the respective packets one of Y associated levels of priority, each level of priority being associated with a different probability of packet loss.

57. (Previously Presented) The electromagnetic signals of claim 56, wherein the method further comprises the steps of:

determining a new weighted average depth for the free queue; and

determining a probability of discard for a given packet if the new weighted average free queue depth falls below a predetermined maximum threshold associated with the class of service to which the packet is assigned.

58. (Previously Presented) The electromagnetic signals of claim 57, wherein the method further comprises the step of:

discarding a given packet if the new weighted average free queue depth is less than a minimum threshold associated with the class of service to which the packet is assigned.

59. (Previously Presented) The electromagnetic signals of claim 57, wherein the method further comprises the step of:

retaining a given packet if the new weighted average free queue depth is greater than a maximum threshold associated with the class of service to which the packet is assigned.